CLAIMS

1 A process for the synthesis of cumene hydroperoxide, comprising the step of oxidating cumene to cumene hydroperoxide in a liquid phase in the presence of an oxidating agent and of a basic medium insoluble and stable in the reaction environment, said basic medium being such as not to release inorganic cations to the reaction environment.

2. A process according to claim 1, where the oxidizing agent is oxygen in pure form or in a mixture with other gases, and is preferably air.

3. A process according to claim 1 or 2, where said cumene to cumene hydroperoxide oxidizing process is run under substantially anhydrous conditions.

4. A process according to any of the claims from 1 to 3, where said basic medium is a basic resin.

5. A process according to claim 4, in which said basic resin is a pyridinic resin.

6. A process according to claim 5, where said pyridinic resin is chosen from the group comprising reticulated poly-4-vinylpyridine (a polymer of 4-ethenylpyridine with diethenylbenzene, CAS RN 9017-40-7), high-porosity reticulated poly-4-vinylpyridine and a polymer of 4-ethenylpyridine with diethenylbenzene and ethenylethylbenzene quaternarized with methyl chloride.

7. A process according to claim 6, where said resins are chosen from the group comprising REILLEX™ 402-I, REILLEX™ 425, REILLEX™ HP, REILLEX™ HPQ and REILLEX™ 402 commercialized by the Reillex company.

8. A process according to any of the claims from 1 to 7, wherein said basic medium is used in quantities comprised between 0.1 g and 60 g of basic medium for each kg of cumene, preferably between 10 and 25 g of basic medium for each kg of cumene.

9. A process according to any of the claims from 1 to 8, wherein said oxidation reaction is run at a temperature comprised between 60°C and 150°C up to the point when the conversion of the cumene to hydroperoxide is between 5% and 40%, preferably between 20% and 25%.

10. A process according to claim 9, wherein said oxidation reaction is run at temperatures comprised between 90°C and 115°C and for reaction times comprised between 30 minutes and 10 hours, preferably between 1 and 6 hours.

11. A process according to any of the claims from 1 to 10, wherein said oxidation reaction is run at relative pressures comprised in the range from 0.5 and 10 bar.

12. A process according to any of the claims from 1 to 11, wherein said oxidation reaction is run in two or

more reactors in series, preferably in three reactors in series, operating at different temperatures decreasing from the first to the last reactor.

13. A process according to claim 12, wherein the reaction temperature in said first reactor is about 115°C and in said last reactor is about 90°C, and where the remaining oxidation reactors operate at intermediate temperatures.

14. A process according to any of the claims from 1 to 13, wherein said basic medium is contained in one or more baskets immersed in anyone of said oxidation reactor or reactors in such a manner that said basic medium is in contact with the reaction environment.

15. A process according to any of the claims from 1 to 14, wherein said process comprises a concentrating phase of the reaction mixture exiting from said oxidating phase for the purpose of separating unreacted cumene from the cumene hydroperoxide product.

16. A process according to claim 15, wherein said concentrating phase is operated in a direct succession to said oxidating phase.

17. A cumene hydroperoxide obtainable according to the process according to any of the claims from 1 to 16, characterized in that it is free of inorganic cations.

18. A composition containing cumene hydroperoxide

as a main component, characterized in that it is free of inorganic cations.

19. A composition according to claim 18, in which the dimethylphenylcarbinol content is lower than 2% by weight, preferably lower or equal to 1.5% by weight.

20. A process for the synthesis of phenol and aceton from cumene, comprising a stepof synthesis of cumene hydroperoxide according to any of the claims from 1 to 16.